

**ABSTRACT**

A method and apparatus for transmitting data from an optical network unit (ONU) to an optical line termination (OLT) in a Gigabit Ethernet passive optical network (GE-PON) on the basis of a time division multiple access (TDMA) scheme are provided. A measurement of a data transmission time when the data is transmitted to the OLT is obtained, and the measured data transmission time is compared with a predetermined normal transmission time. The transmission of the data is maintained if the measured data transmission time is determined to be less than or equal to the normal transmission time from the comparison result. However, if the measured data transmission time is determined to be greater than the normal transmission time, the transmission of the data is stopped.